**Amendments to the Drawings:**

Drawing Figures 1-2 are amended herewith in accordance with the Examiner's requirements to label object 148 as "channel" and to add the legend "Prior Art" to Figure 1.

Included as attachments are replacement Drawing Sheets 1 and 2, which include figures 1 and 2, together with annotated copies of original Sheets 1 and 2 with changes marked in red.

Attachments:

Replacement Sheets 1 and 2 (Figures 1 and 2)
Annotated Copies Showing Changes

## REMARKS

Prior to entry of the amendment set forth above, Claims 1-20 were pending, including independent Claims 1, 12, 16 and 20. After entry of the amendment, Claims 1-24 are pending, including independent Claims 1, 3, 12, 16 and 20.

No new matter is added by the amendment. Examples of support are provided below. The amendments to Claim 1 and 16 are similar, and are supported, for example, by page 17 lines 6-7; page 18 line 30 to page 19 line 3, and page 19 lines 11-15. Because the method augments standard data puncturing by selectively disabling symbol puncturing, it follows that in specific embodiments having two adjacent puncturing patterns P(i) and P(i+1) that differ in only one symbol location, the difference is necessarily that puncturing is disabled in one symbol location of the augmented puncturing pattern, while puncturing of the same location is enabled in the other (standard) puncturing pattern. Claim 16 is additionally amended to remove "standard" from the term for the puncturing device. The term was meant to convey that the device is closely based on standard puncturing patterns, but is better removed because it could be misconstrued in several ways, and is unnecessary for understanding the scope of the claim. Claim 3 has been rewritten in independent form. The only substantive amendments to Claim 3 are replacements of the phrase "is associated with" in two locations to enhance clarity, which amendments are supported within the same material indicated above as supporting the amendments of Claim 1. Claims 16 and 17 are also amended grammatically and stylistically to remedy the Examiner's objections thereto in section 4 of the current Office Action, which amendments are self-supporting. New Claims 21 and 23 are supported by the material indicated above as supporting the amendments to Claims 1 and 16. New Claims 22 and 24 are supported by original Claim 3, together with the equation upon which Claim 3 is based and the textural description thereof.

In response to the Examiner's drawing objections in section 2 of the current Office Action, Replacement Drawing Sheet 1 adds the legend --Prior Art-- to Figure 1, and Replacement Drawing Sheet 2 adds the legend --Channel-- to the block referenced 148. In addition, in block 150 the spelling of modulator has been corrected. The changes are indicated in red on the attached annotated copies.

*Information Disclosure Statement of 12/14/2001*

The Examiner declined to consider the references listed in an Information Disclosure Statement (IDS) submitted by the Applicant on December 14, 2001, asserting that the IDS was defective due to the absence of two listed non-patent references. Attached hereto is a photocopy of the postcard returned from the USPTO with respect to said IDS, indicating receipt of all four references listed with said IDS. A photocopy of the signed Information Disclosure Statement itself is also attached, which constitutes an assertion at the time of

proper submission of all four references. The clear implication of this evidence is that the Applicant properly submitted, and the USPTO received, all of the references listed in said IDS. Further attached to this Amendment are copies of the missing non-patent documents. Due to the apparent USPTO error, it is expected that the Examiner will proceed to properly consider these references without a need for a new IDS.

*Rejections Over Lee*

In section 6 of the current Office Action, the Examiner rejects Claims 1 and 16-20 as anticipated by Lee. In section 9 of the current Office Action, the Examiner rejects Claim 2 as obvious over Lee in view of Yoon. It is respectfully submitted that the amendments to Claim 1 render Claims 1 and 2 nonobvious over Lee, even in view of Yoon, a conclusion that is supported by the remarks set forth below.

For context, it should be understood that one basis for the Applicant's invention is a desire to accommodate varying data sizes while retaining the advantages of standard puncture patterns that have been worked out in advance (see, *e.g.*, pg. 5 line 18-pg. 6 line 9, and the Abstract first sentence). A standard puncture pattern that has been developed for a particular coding scheme is likely to take advantage of the relative value of specific data elements (or bits) by retaining those elements that are most valuable for decoding, and puncturing only those elements that are of less importance. (Puncture patterns for which this is not true are inappropriate as standard puncture patterns, but that issue is beyond the scope of the subject application.)

Accommodation of varying data lengths often requires varying the puncture pattern. However, the Applicant observed that the advantages of the standard puncture pattern could be retained by restricting the variations in the puncture patterns that are used for puncturing a particular data set. In particular, there should be no puncturing in a puncture pattern group ("PPG") of bits that would not be punctured according to the standard puncture pattern. The only puncture pattern changes allowed should be to disable puncturing of a selected bit that is punctured according to the standard puncture pattern. Thereby, the selected bit is retained, together with all of the bits ordinarily retained according to the standard puncture pattern, which can only improve the ability to decode the data of the PPG. This may be thought of as a way to ensure that a nonstandard puncture pattern (needed for matching) is at least as good as a standard pattern.

Now in view of the context set forth above, consider the amended language of Claim 1. Claim 1, as presently amended, recites in part:

> [M]atching the data set into the standard data frame utilizing the standard puncture pattern and one or more same-length alternative patterns differing only in that puncture of selected bits that would be punctured according to the standard puncture pattern is disabled to retain a quantity of the selected bits equal to the puncture disable quantity obtained in step (b).

On page 5 of the current Office Action, the Examiner asserts that "puncture disable quantity," as recited in Claim 1 as originally filed, reads on "symbols that are not punctured in a read pattern which is part of the patterns as shown in Figs. 4A-4C" of Lee. According to Claim 1 as presently amended, however, the "puncture disable quantity" of bits is retained by disabling puncture of "selected bits that would be punctured according to the standard puncture pattern." The quantity (at least after amendment) is thus not as the Examiner originally understood, but rather is a quantity of punctures by which standard puncturing must be reduced to achieve matching. Lee fails to disclose, teach or suggest determining such puncture disable quantity, as required by Claim 1 as presently amended.

Lee also fails to suggest using the standard puncture pattern and any alternative pattern for matching the data set, as required. Instead, Lee arrives at a particular puncturing pattern and uses it exclusively for a particular data set. Having no concurrent alternative patterns, Lee is further unable to teach the relationship between such patterns that is further required by Claim 1 as presently amended.

Lee thus fails to anticipate Claim 1, as presently amended, for at least the reasons set forth above.

The Examiner does not cite Yoon for the limitations discussed above, but, for completeness, it is submitted that Yoon also fails to teach or disclose these limitations, and thus cannot remedy the deficiencies of Lee to render obvious Claim 1 as presently amended. Yoon, to be sure, is more directed to adjusting puncturing in order to adapt variable input bit rates to particular interleaver or transmission frame sizes. However, Yoon suggests very different methods for varying the puncturing rate. In particular, Yoon primarily suggests "uniform" puncturing of the whole output bitstream (see, *e.g.*, paragraphs 86-87, and paragraph 89, last sentence). "Uniform" puncturing, as taught by Yoon, includes no suggestion to make use of a standard puncturing pattern.

The alternative puncture patterns required by Claim 1 (as presently amended) for puncturing a data set have the same length, but have different numbers of retained bits, as compared to the standard puncture pattern. The different "bit retention ratio" makes them useful for rate matching. In contrast, Yoon teaches the use of different-length *n* puncture patterns for matching purposes (see, *e.g.*, Table 1 and paragraph 81, and Table 2), contrary to the requirements of Claim 1. Yoon also teaches using same-length alternative puncture patterns, but only to achieve uniformity of puncturing (see, *e.g.*, last sentence of paragraph 90). As may be seen, such alternatives do not accord with the requirements of Claim 1: most have the same number of retained bits, and all differ in ways other than by merely avoiding puncturing of certain symbols.

In view of the failures of disclosure of Lee and Yoon set forth in the remarks above, it may be seen that no combination of Yoon and Lee would comprise all of the limitations set forth in Claim 1 as presently amended. As such, neither Yoon, nor Lee, nor a combination of the two, can render obvious Claim 1 as

presently amended. Accordingly, Claim 1, together with all claims properly depending therefrom, is nonobvious over Lee and/or Yoon.

**Claim 16** has been amended in a manner that causes it to be distinguished over Lee and/or Yoon in a manner, and for reasons, that are comparable to those set forth above with respect to Claim 1. As noted above, neither Lee nor Yoon discloses, teaches or suggests that one should "puncture the data set in accordance with a standard puncturing pattern and in accordance with an alternative puncturing pattern differing from the standard pattern only by disabling puncture of an individual data element that would be punctured according to the standard pattern," as required by Claim 16 as presently amended. Consequently, Claim 16, as presently amended, together with the claims properly depending therefrom, is nonobvious over Lee and/or Yoon, alone or in combination.

*Rejections over Koehn*

In section 7 of the current Office Action, the Examiner rejects Claims 12 and 14 as anticipated by Koehn. This grounds for rejection is respectfully traversed.

The Examiner asserts that "selecting a transmission data frame from a plurality of standard data frames," required by Claim 12, reads on the "data transport block 14" of Koehn. To support a contention that the data transport block 14 is selected from a plurality of standard data transport blocks, the Examiner points to col. 5 lls. 28-31 of Koehn. It appears that the Examiner may have misconstrued certain grammatical errors in the cited passage. It is respectfully submitted that nothing in the cited passage, or elsewhere in Koehn, suggests the use of a plurality of data transport blocks 14.

Not only is there no clear suggestion of different data block sizes, but certain portions of Koehn imply that there is only one size. The abstract recites in part (emphasis added): "The data block has a size which is different that a size of the data frame." Further, col. 4 lls. 38-41 recites (emphasis added): "[In cell phones] data is transported in bursts of data bearing radio signals, which represent a predetermined data size." Yet further, col. 4 lls. recite (emphasis added): "The transport data blocks 14, are arranged to be substantially equal in size, to a pre-determined size ... ." The English is awkward, but the implication is consistently that of a single block size ... particularly in any given application, such as cell phones. Even col. 5 lls. 28-31, cited by the Examiner, recites in part (emphasis added) " ... which fits with the size of the transport block 14." Thus there is no suggestion of selecting from among alternative block sizes, particularly within any particular application (*i.e.*, embodiment), and the cumulative implication of the relevant statements regarding data block 14 is that only a single size is assumed.

Selection of the transmission data frame size is an important part of Claim 12,which is why the feature is relied upon for new Claim 24, and why further details of this feature are provided in original Claim 13 and new Claim 22. Selection of the data frame size is a significant first step in the matching process. By

minimizing the difference between the data set size (after standard puncturing) and the frame size, frame selection minimizes number of times that the standard puncture pattern must be modified, thus staying as close as possible to the standard puncture pattern. This in turn permits retaining the advantages inherent in the standard puncture pattern.

The foregoing remarks support a conclusion that Koehn fails to anticipate Claim 12, and therefore fails to anticipate Claim 14 as well. Claims 13 was indicated as allowable. New Claim 21 further limits frame selection in a manner that, though described in English, includes requirements similar in effect to those recited in Claim 13. New Claims 22-24 add additional limitations to new Claim 21, such that they are further distinguished over the cited prior art. New Claim 22, in particular, adds limitations that are not taught by Lee or Yoon, for example, for reasons similar to reasons set forth above with respect to Claim 1. .

*Conclusion*

It is respectfully submitted that the amendment and remarks set forth above overcome each objection and each grounds of rejection set forth by the Examiner. As such, the Examiner is respectfully requested to reconsider the application, to withdraw all previous rejections, and, barring the discovery of new grounds for rejection, to promptly issue a Notice of Allowance of all pending claims.

The Commissioner is authorized to construe this paper as including a petition to extend the period for response by the number of months necessary to make this paper timely filed. Fees or deficiencies required to cause the response to be complete and timely filed may be charged, and any overpayments should be credited, to our Deposit Account No. **50-0490**.

Respectfully submitted,

1/23/2006
Date: January 23, 2005

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Annotated Drawing Sheet 1 Showing Changes

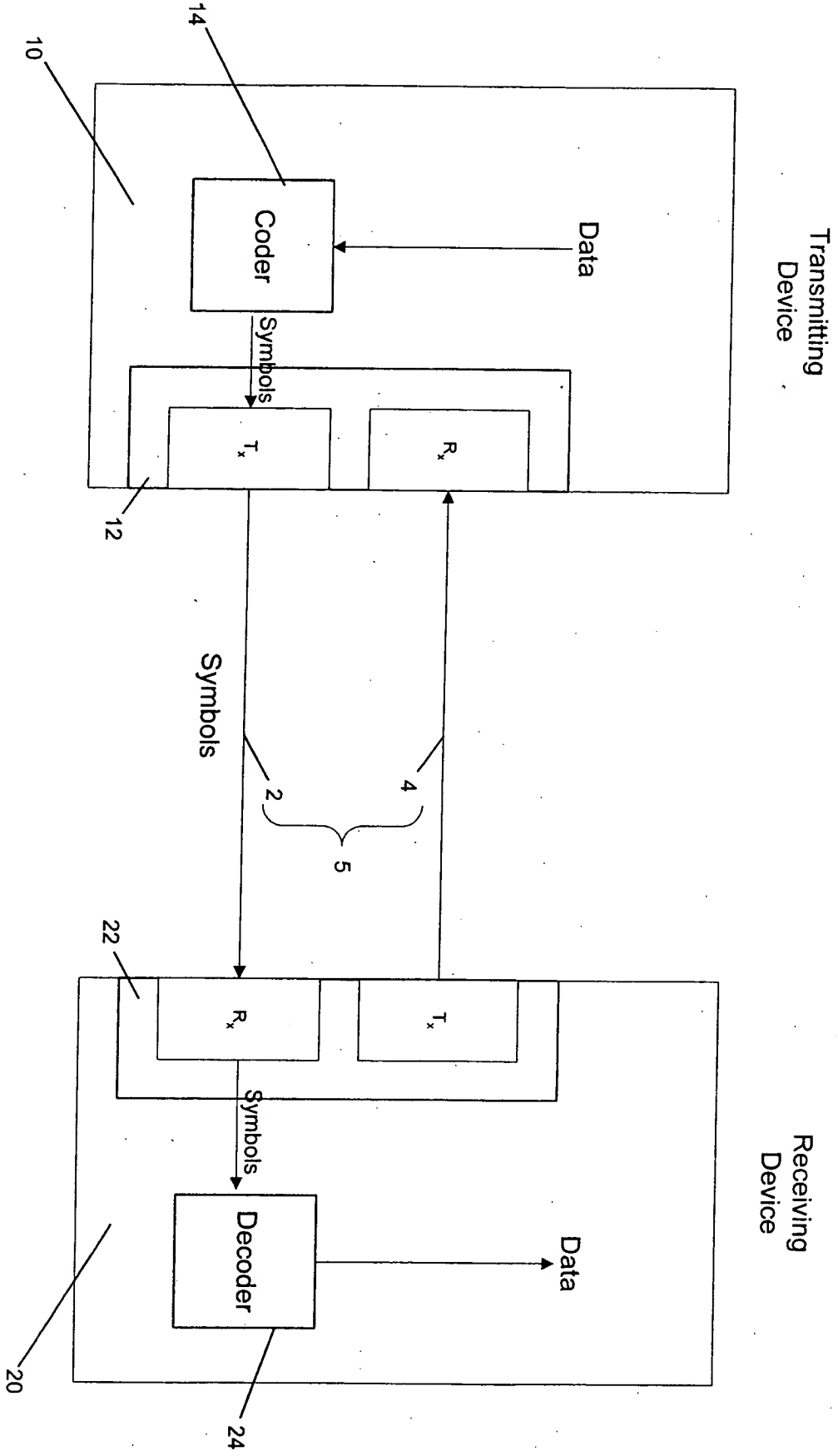


FIGURE 1
(PRIOR ART)

Annotated Drawing Sheet 2 Showing Changes

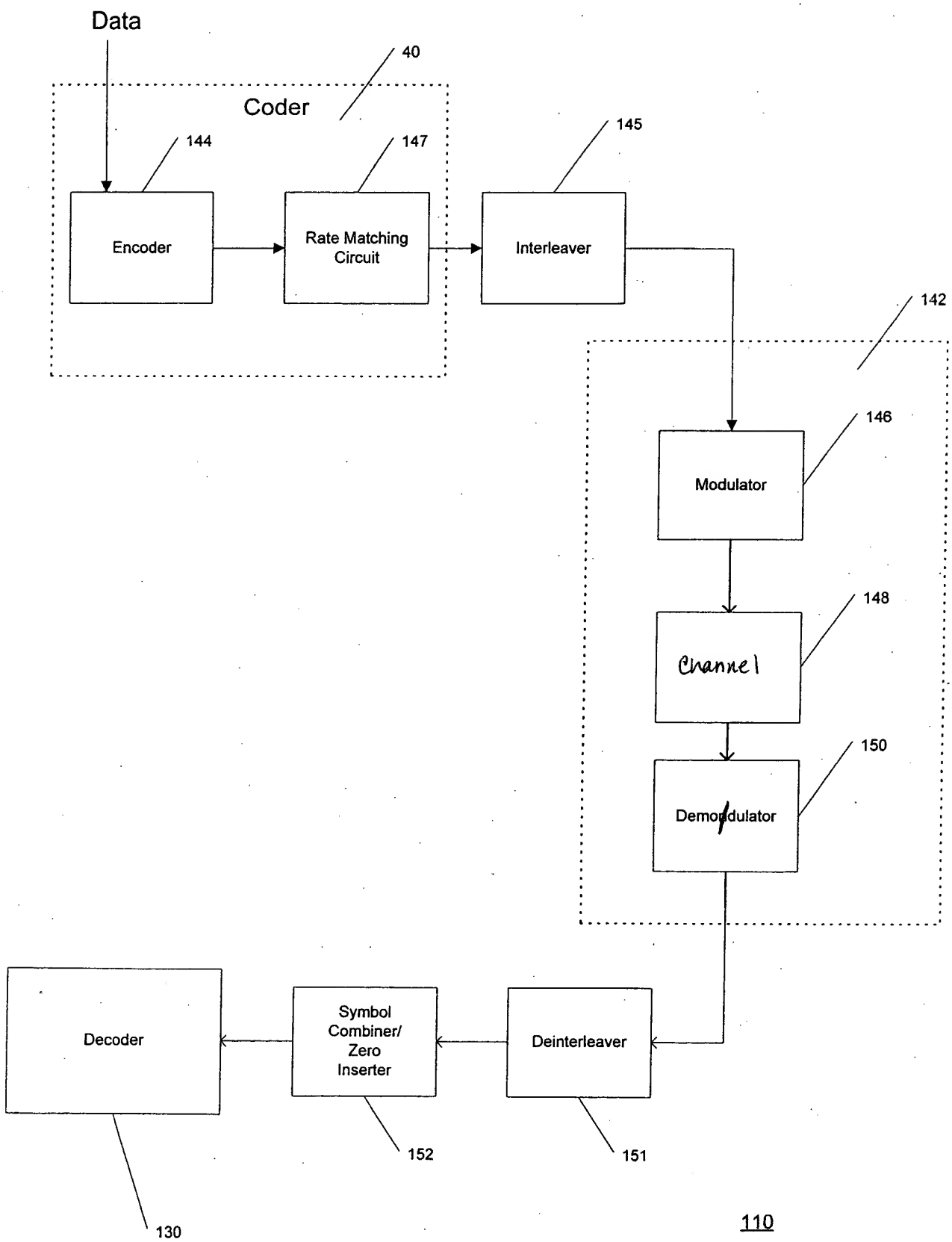


FIGURE 2